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ABSTRACT

Text analysis systems, imposing coherence measures derived from the reader's and writer's notions of how a text functions in communication, produce descriptions of texture, or the totality of cohesive ties in a text. The question is if cohesion analysis, more than offering a linguistic description of text, can serve as a psychological model of comprehension complete with predictive power. The temptation exists to use the linguistic description as a text analytic device that partials out the cohesive aspect of the text thought to be causally related to the text's coherence. This concept, however, can lead a researcher to several false hypotheses, often because the cohesive tie, in and of itself, may or may not be explicit. Findings from several studies indicate that the cohesion concept does not produce an adequate description of a text's unity. Attempts to maintain objectivity by measuring textual surface features appear to describe effects rather than causes of textual coherence. (HOD)

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COHESION: PROBLEMS WITH TALKING ABOUT TEXT: A BRIEF COMMENTARY

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Cohesion: Problems with Talking about Text:
A Brief Commentary

Text analysis has been with reading comprehension research for almost 20 years. During that time, several systems have been established as powerful tools for explaining comprehension of text. For example, Kintsch's (1974) propositional system was the basic tool used in the development of Kintsch and van Dijk's (1978) concept of macrostructure and its role in a theory of discourse comprehension and production. The story grammars, especially of Stein and Glenn (1979) and Mandler and Johnson (1977), strongly predict comprehension of narrative text based on a text's adherence to the canonical ordering of story parts. Likewise, Meyer's (1975) use of content analyses of expository text has shown the importance of a text's top level structure to the reader's comprehension of text.

Although text analysis systems have been criticized for their presumption of objectivity in representing what is in the text, they have gained prominence precisely because of their disciplined subjectivity. What these systems have in common is their attempt to represent some aspect of coherence, whether it be in terms of macrostructures, story schemata, or top level structures. In all cases the analysis works primarily top-down, imposing coherence measures on text as a consequence of the reader's and the writer's notions of how a text can and should function in communication.

The purpose of this paper is to comment on what happens when a text-analysis system works bottom-up from the text without regard to interpreted structural properties. Halliday and Hasan (1976) describe cohesion as that which makes a sequence of words and sentences unified and hence

interpretable as a text.[1] Cohesion is defined explicitly as instances of anaphora, reiteration, and collocation which relate sentences. Although it is a straightforward task of text-analysis to work bottom-up in itemizing and categorizing these linguistic facts of a text, it is presumptuous to call these facts cohesive. Halliday and Hasan, however, maintain that linguistic factors are responsible for carrying meaning across sentence boundaries and defining one aspect of a text's coherence. Research investigating the nature of textual coherence using the cohesion concept has not found cohesion causally related to a text's coherence. As the text-analysis systems mentioned above implicitly assert, coherence is primarily a top-down phenomenon whether working from the perspective of the writer or the reader.

The Cohesion Concept

By text, Halliday and Hasan mean any sample of discourse whose meaning and function is readily apparent independent of other discourse. In the words of Halliday and Hasan, a text is a sample of discourse which forms a "unified whole." They claim that the concept of a text is as intuitively powerful as the concept of a sentence--we know when a string of sentences makes a text just as we know when a string of words makes a sentence. However, a text is different from a sentence. A text is not characterized by formal structural properties as is the sentence, and therefore it is not perceived as some kind of "supersentence" with a textual syntax. Rather, as Halliday and Hasan put it, a text is characterized by its texture. By texture, Halliday and Hasan mean that quality of a text which establishes its wholeness or unity rather than its

meaning. Texture "expresses the fact that it (the text) relates as a whole to the environment in which it is placed" (p. 293).

And how is this texture, this textual unity, created? By the cohesive relations in the text. For example, in the sentences,

> Wash and core six cooking apples. Put them into a fireproof dish,

"them" is a cohesive item presupposing the phrase "six cooking apples." Together, the presupposing and presupposed items define a cohesive relation, referred to as a cohesive tie. Each cohesive tie in a text is an instance of cohesion. What all ties have in common, what makes them cohesive, is "the property of signalling that the interpretation of the passage in question depends on something else" (Halliday & Hasan, 1976, p. 13). Apparently a tie's function is to signal the reader or listener to relate present text with earlier text and thus to create texture, to establish a text's unity.

There are several types of cohesive ties. There are reference ties where pronouns in one sentence presuppose some noun or noun phrase used in another sentence, as in the example above. There are substitution ties where words such as <u>one</u> substitute for and thereby presuppose previous reference to a noun or noun phrase:

> Two books lay on the table. John picked up the larger <u>one</u>.

There are ties of ellipsis where the absence of a presupposing item assumes a presupposed item or phrase:

> Have you seen the movie? Yes, I have.
> ('seen the movie' is presupposed in the second sentence)

There are ties of conjunction where connectives are used to relate sentences:

> The English Bill of Rights is an important document in English history. However, it is second in importance to the Magna Carta.

Finally, there are lexical ties where items are tied either by reiteration:

> The paper is on attribution theory. Actually, the paper criticizes attribution theory,

or collocation, where items have the potential of appearing together in a text (i.e., their concepts are commonly associated with one another):

> We had miserable weather last Saturday. This weekend's isn't supposed to be any better.

To Halliday and Hasan, the description of the totality of such ties in a text constitutes a description of its cohesive properties or its texture.

The Cohesion Concept and Textual Coherence

The question remains. Is cohesion analysis simply what Halliday and Hasan claim it to be, a type of linguistic description of text, or have they invited readers to assume that their linguistic description will serve as a psychological model of comprehension complete with predictive power? By contrast, story grammar and text structure researchers usually try to explain comprehension by means of an analysis of the function that different text features must have played. For example, when a story grammarian speaks of a section of text identifying character goals, or when one works out a content structure for an expository text using a problem/solution structure, a description of the function of parts of a text in an overall plan or schema for the text is given, not a linguistic description of the text. To say that one is giving a linguistic description of text is to say that one gives a description independent of any of the broader contextual factors that may influence the interpretation

of a text's meaning. As linguistic description, cohesion analysis cannot presume to determine a text's coherence; rather it must assume coherence and then describe the linguistic, cohesive consequences of this coherence.

Halliday and Hasan claim that cohesion analysis serves only this descriptive function. They do not mean to define a theory of textual cohesion that explains coherence and predicts comprehension. As Halliday and Hasan state, "the analysis of cohesion will not tell you that this or that is a good text or a bad text or an effective or ineffective one in the context" (p. 328).

But Halliday and Hasan end up making greater claims for the cohesion concept. They tie it to the concept of register in explaining the coherence of text. The concept of register embodies the kind of non-textual, contextual facts that invoke in the reader relevant prior knowledge necessary to the understanding of any text. Halliday and Hasan conceive of the relationship between register and text as one aspect of the text's coherence--the coherence of a text meeting the expectations operative in a given reading/listening situation. The complementary aspect to the text's registeral coherence is the text's cohesion:

> A text is a passage of discourse which is coherent in these two regards: it is coherent with respect to the context of situation, and therefore consistent in register; and it is coherent with respect to itself, and therefore cohesive. Neither of these two conditions is sufficient without the other, nor does the one by necessity entail the other . . . the hearer, or reader, reacts to both of these things in his judgment of texture. (p. 23)

The upshot of this statement is that cohesion is thought of by Halliday and Hasan as an equal partner with register in the determination of a text's coherence. But, by describing cohesion as a determinant of coherence

interactive with register rather than as a consequence of coherence, Halliday and Hasan do seem to have confounded linguistic description with the description of the psychological function of text characteristics in comprehension.

The Use of the Cohesion Concept in Comprehension Research

Halliday and Hasan's exposition of the cohesion concept has led to some research in reading and composition, testing out the notion that cohesion is a fact about the text causally related to its coherence. The temptation exists to use the linguistic description as a text-analytic device which partials out the cohesive aspect of the text thought to be causally related to the text's coherence. This interpretation of the cohesion concept leads a researcher to several possible false hypotheses. For example, a researcher might hypothesize that the quantity of cohesive ties alone is a coherence-producing factor in text affecting comprehension. The logic of this hypothesis is based on the assumption that the tie, in explicitly signalling a relationship between concepts referenced by words in a text, reduces the cognitive demands of establishing that relationship thereby facilitating comprehension. It is reasoned that the degree to which ideas in a text are related via cohesive ties is the degree to which relations between ideas are understood by a reader. Such a position asserts the reality of a quantifiable reader-independent text variable predicting the comprehensibility of a text.

This logic, however, is flawed. The cohesive tie, in and of itself, may or may not be explicit. In other words, there is the potential of the tie being used ambiguously by the writer. Whether the tie is ambiguous or not is a consequence of its use, not its mere presence. It could be argued

that the presence of a tie signals the reader to make the assumption that the tie is used coherently--i.e., that the text is coherent. This point is made convincingly by Morgan and Sellner (1980), who have argued that the cohesion concept of Halliday and Hasan depicts an aspect of text subordinate to content coherence rather than causing it:

> One might have assumed that the coherence of a text was a matter of content, which would have, of course, linguistic consequences. In a coherent biography of Churchill, for example, one would expect frequent mention of Churchill; one would therefore expect frequent occurrence of words like Churchill, he, his, him, and so on. The source of coherence would lie in the content, and the repeated occurrence of certain words would be the consequence of content coherence, not something that was a source or coherence. It would be a serious mistake to construe this linguistic manifestation as cause rather than effect. (p. 179)

Thus, our first hypothesis, that the quantity of cohesive ties in a text predicts ease of comprehension, is rejected on logical grounds. In reading studies by Thomas and Bridge (1980), Rhodes (1979), and Teddlie (1979), the cohesion concept and the text-analysis system it defines could not account for comprehension differences between readers. In these studies it was concluded that the cohesion concept does not represent a reader-independent text variable predicting and explaining comprehension of text.

Two composition studies using the cohesion concept also concluded against its usefulness as a predictor of a text's coherence for a reader. Pritchard (1980) found that the greater use of cohesive ties characterized the problem sections of compositions written by poor writers rather than the more coherent sections. Tierney and Mosenthal (1981) found that cohesion analysis could distinguish, descriptively, between texts written

on two different topics but that it could not distinguish between texts written on one topic that were rated for their comprehensibility. For example, biographical texts contained many more instances of referential cohesion (he, his) than did texts written about a theme common to several short stories. But the texts rated more coherent within the biographical sample or the theme sample could not be distinguished by cohesive analysis.

One study by Irwin (1980), however, did find positive results for the quantity of cohesive ties in a text. She found that highly cohesive text (i.e., text with a greater number of cohesive ties) positively affected reading rate and performance on a delayed prompted recall task. Some question remains as to the extent to which the high-cohesive and low-cohesive texts varied only on the cohesive variable. All the studies mentioned above used naturally occurring text. In Irwin's study, however, all types of ties were reduced in the low cohesion text, resulting in low cohesion texts that discuss topics briefly, contrasted with high cohesion texts that discuss topics in depth.

A second hypothesis that follows from the interpretation of cohesion as a coherence-producing aspect of text was tested in a study by Freebody and Anderson (1981). This hypothesis states that cohesive ties are hierarchically organized. Freebody and Anderson have explained that it may be the case that certain types of ties are more difficult to process than others because of their "distance" in the hierarchy from the optimal condition of reiteration. When this hypothesis was tested, no effects for cohesion were found.

Summary and Conclusion

It may be a terminological contradiction to claim that the linguistic objectivity of cohesion analysis can partially explain the coherence of text. Given the findings cited in this commentary, it must be concluded that the cohesion concept alone is inadequate as a description of a text's unity. This is a conclusion directed as much to those who would use the cohesion concept in comprehension research as it is directed against the notion that there is a theory of textual unity founded on the linguistic, cohesive properties of text described by Halliday and Hasan. It would seem that attempts to maintain objectivity by measuring surface features of text end up describing effects rather than causes of coherence in text.

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Footnote

[1] Throughout this commentary, we restrict our comments about cohesion to its description as represented in Halliday & Hasan's 1976 book, Cohesion in English.